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A New Species of the Genus *Leiobunum* (Arachnida, Opiliones)
from Sado Island, Japan¹⁾

With 27 Text-figures

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ABSTRACT A new opilionid, *Leiobunum sadoense* is described from Sado Island, Japan. This species is closely related to *L. hiasai* SUZUKI, known from the Akaishi Mountains, central Honshu, but distinctly differs from the latter in the shape of penis and male labrum.

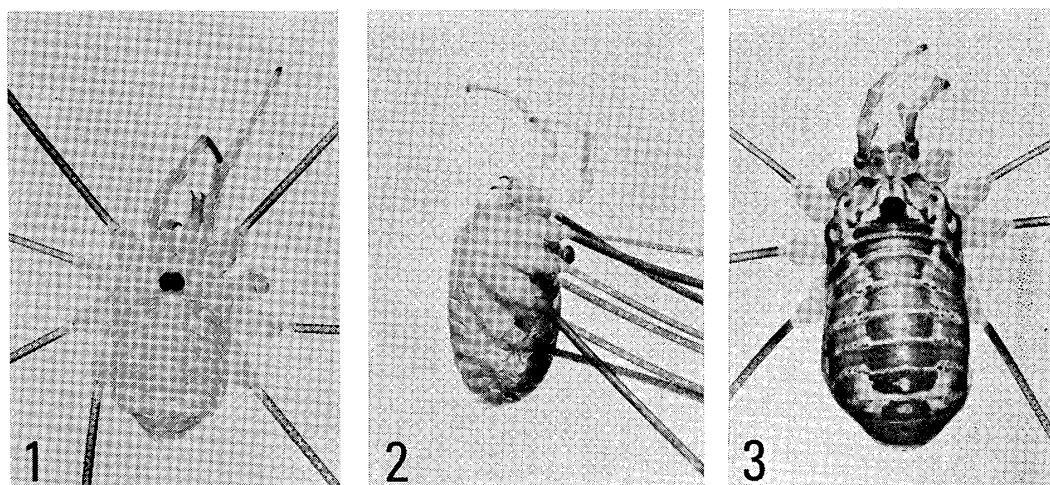
By the remarkable geographical differentiation in the Japanese Islands, *curvipalpe*-group of the genus *Leiobunum* (Leiobunidae, Palpatores, Opiliones) is one of the most promising materials for evolutionary studies. Up to the present, about 20 forms of this group have been described from Japan mainly by SUZUKI (1976 and others), but their taxonomic relation has been still poorly known due to the scarcity of comparable characters and information about their distribution and biology. In order to make a thorough revision, I have been engaged myself since 1978 in the studies on the taxonomy and biology of this fascinating group. The present paper deals with a new species of this group from Sado Island as the first report of my serial works.

***Leiobunum sadoense* n. sp.**

(Figs. 1–27)

Type-series. Holotype (♂) and 11 paratypes (2♂♂, 7♀♀, 2 juv.), Mt. Myôken (850–940 m in altitude, in beech forest), Sado Is., Niigata Pref., 2I–VII–1980, N. TSURUSAKI leg. Besides these 12 specimens designated as the type-series, 6 males, which were considerably damaged by dissection for the cytological observations, were collected from the type-locality at the same time. These six specimens were also examined. The type-series is deposited in the Zoological Museum, Faculty of Science, Hokkaido University.

1) Studies on the taxonomy and biology of *Leiobunum curvipalpe*-group (Opiliones, Leiobunidae). I.



Figs. 1-3. *Leiobunum sadoense* n. sp. — 1-2. Dorsal and lateral views of male. — 3. Dorsal view of female. $\times 7$ in all figures.

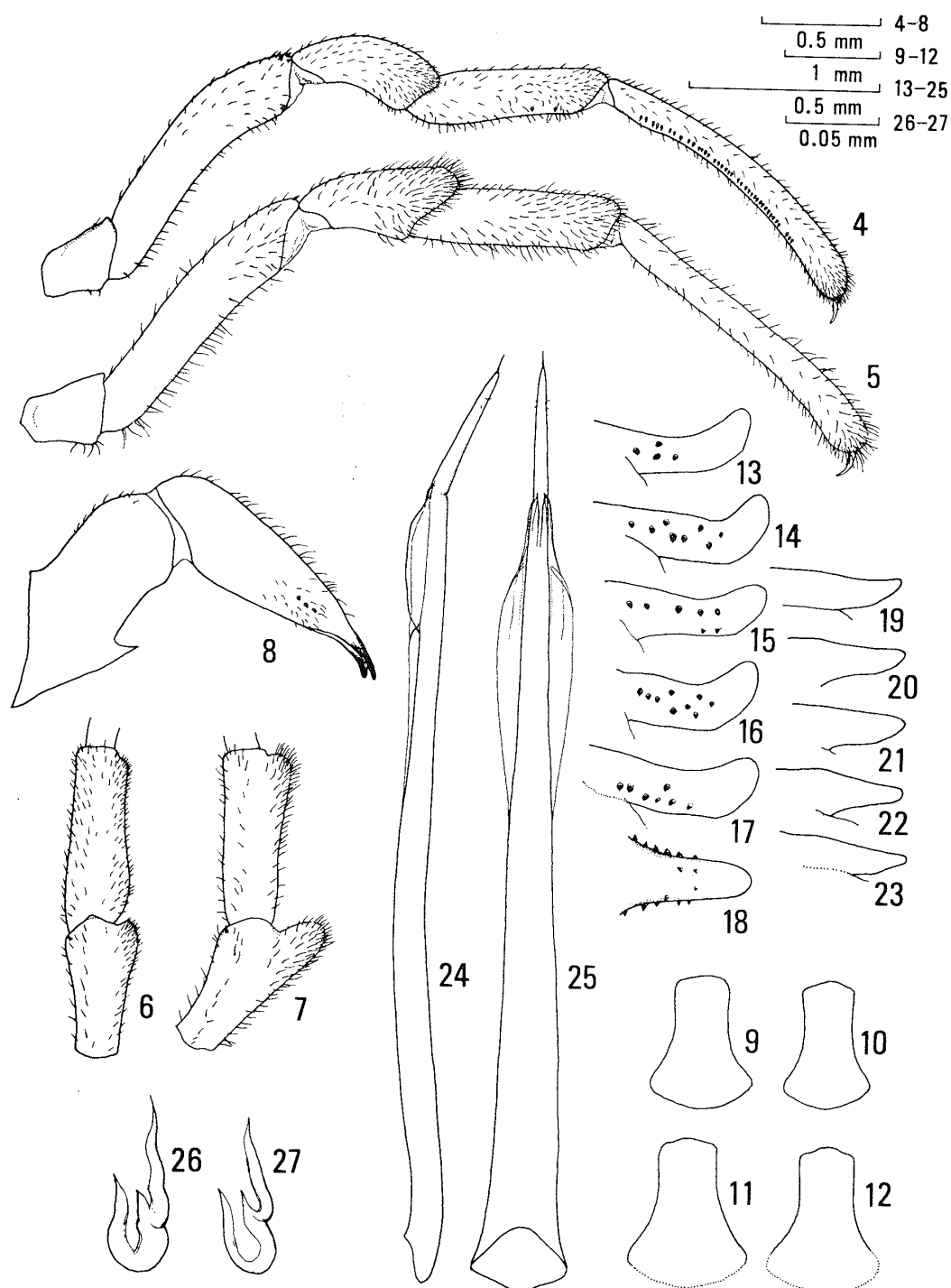
Description.

Male. Body as shown in Fig. 1, nearly oval in shape; lateral margins of cephalothorax slightly concaved at the insertions of coxae; abdomen widest at fourth and fifth tergites, bluntly pointed posteriorly. Dorsum very finely granulated, without marked tubercles. Eye tubercle rounded, slightly constricted at base, wider than long from above, wider than high in profile, canaliculate above, the carinae armed with some scattered teeth. Coxae smooth but with scattered short hairs. A marginal row of minute tubercles present on both anterior and posterior sides of coxae I-II and on the posterior sides of coxae III-IV; tubercles mostly limited to the distal half of the coxae, and sometimes invisible. Genital operculum and free sternite smooth, only with sparse short hairs; genital operculum moderately rounded postward as in Figs. 9-10. Labrum rod-shaped, apex bent upward, with four to seven blackish teeth on proximal two-thirds of each lateral side (Figs. 13-18).

Chelicera. As in Fig. 8, normal, both segments dorsally with short hairs; the distal segment armed distomesally with two or three denticles and several short hairs.

Palpus slender (Figs. 4, 6); femur moderately widened distally and curved ventrally, armed with a few black-tipped denticles at distal end above and distolaterally. Patella curved below, widened distally and with a small distomesal blunt process which is set with dense short hairs. Tibia somewhat swollen proximally, armed ventromesally with a few small blackish teeth at distal portion. Tarsus slender, slightly curved ventrally, armed ventromesally with a row of small blackish tubercles, tubercles extending nearly full length of the segment; a second row of small denticle exist on the ventrolateral surface, along the first row.

Legs. Long and slender; trochanters with a few small denticles on both posterior and anterior sides, femora with scattered sharp pointed teeth uniformly, patellae with a few denticles above, remaining leg-segments only with scattered



Figs. 4-27. *Leiobunum sadoense* n. sp. — 4-5. Mesal views of left palpus: 4, male; 5, female. — 6-7. Dorsal views of left palpal patella and tibia: 6, male; 7, female. — 8. Mesal view of left chelicera, male. — 9-12. Male (9-10) and female (11-12) genital opercula, only contours were drawn. — 13-23. Male (13-18) and female (19-23) labri, showing individual variation. Right-side views, except for Fig. 18 which showed ventral view of the same as Fig. 17. — 24-25. Lateral and ventral views of penis. — 26-27. Seminal receptacles.

fine hairs.

Coloration. Ground color in life reddish to orange yellow with brown spots. Marking pattern as shown in Fig. 1, much the same as that in the male of the other species of *Leiobunum curvipalpe*-group, except for one specimen which showed a similar marking pattern to the female. Eye tubercle dark brown, paler at base. Venter somewhat lighter than dorsum. Chelicera and palpus pale yellow. Legs brown to dark brown, trochanters and base of femora paler, patellae, distal portions of tibiae, and remaining segments dark brown.

Penis. Shaft 1.92–2.03 mm long, 0.22–0.25 mm wide at base, 0.12–0.13 mm wide at middle; glans 0.33–0.36 mm long, 0.04 mm at widest portion, stylus 0.06 mm long. Shaft relatively short but slender (Figs. 24–25), flattened dorsoventrally; gradually tapering apically. Alate part simple in structure, extending nearly on the distal half of the shaft. Glans very narrow and elongated.

Female. The female (Fig. 3) is larger than the male but with shorter legs. Palpus: femur not so strongly curved as in the male; patella has distinct apophysis, which is clothed with dense short hairs; tibia somewhat widened distally from above, with the distomesal small apophysis, no armaments; tarsus relatively straight, lacking the definite rows of tubercles. Distal segments of chelicera without any denticles distomesally. Labrum as shown in Figs. 19–23, small, simple in shape. Ground color above silvery-white to whitish yellow with dark brown markings, and the central figure is more distinctly developed than in the male; sides of abdomen with dark brown spots. Venter grayish to whitish yellow.

Ovipositor. Consisting of three forceps segments and about twenty normal segments, of which distal nine to eleven armed with a whirl of eight spines; seminal receptacles located within the third or between the second and third segments as in Figs. 26–27.

Measurements. ♂, holotype (in parentheses ♀): cephalothorax 1.0 (1.4) mm long, 2.2 (2.4) mm wide; abdomen 2.3 (3.3) mm wide; total body length 3.3 (5.3) mm.

Length of palpus and legs ♂ (in parentheses ♀), in mm:

	Fe	Pa	Ti	Mt	Ta	Total
Palpus W	0.29 (0.33)	0.30 (0.36)	0.24 (0.31)	— —	0.14 (0.18)	— —
L	1.01 (1.05)	0.60 (0.56)	0.69 (0.76)	— —	1.28 (1.57)	3.58 (3.94)
Leg I	6.3 (5.3)	1.1 (1.1)	6.4 (5.0)	8.8 (6.6)	12.0 (8.4)	34.6 (26.4)
Leg II	10.8 (9.5)	1.2 (1.2)	11.6 (10.1)	13.8 (11.3)	27.9 (21.4)	65.3 (53.5)
Leg III	6.2 (5.3)	1.1 (1.1)	6.3 (5.1)	9.3 (7.4)	12.4 (9.1)	35.3 (28.0)
Leg IV	8.4 (7.4)	1.1 (1.3)	8.5 (7.3)	12.8 (10.4)	17.5 (12.5)	48.3 (38.9)

Distribution. So far known from the type locality alone.

Remarks. This species is most closely related to *L. hiasai* SUZUKI, 1976 known from the Akaishi Mountains (=the Southern Japan Alps), central Honshu, but is clearly discernible from it by having markedly tapered penis shaft and notably long and slender glans. Also male labrum in profile is more slender and elongated than that of *L. hiasai*.

The specific epithet refers to the type-locality.

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